

The discovery of this specialised subterranean freshwater fauna in the eastern coastal plain of the North West Cape does much to support Dr. Mees' theory that the fauna developed in the Cape Range in late Tertiary or Pleistocene times, and from there colonised the coastal platform when the sea retreated.

However the results of Dr. Holthuis' identification suggest that the two faunas are not now connected, but have developed independently in the last 5,000 years since their migration to the coastal platform from the range.

On the Cape Range, which separates the two coastal platforms, a total of 29 caves and solution pipes were found and explored by this and a previous W.A.S.G. expedition, by D. Cook and T. Fry, earlier this year. Of these only one contained any amount of water. This cave, named by us, Gaping Gill, was approximately 600 ft. above sea level at its deepest point. The water in it was about 2 ft. deep, in a narrow passage, which was followed for 15 yards where it became too narrow to continue further. No life was seen in the water, which was still and slightly brackish.

The large cave system which Condon, Johnstone and Perry (1953) suppose exists in the soft Mandu limestone of the Cape could not be entered from any of the 29 caves that were explored by us. These caves all occurred in the overlying hard Tulki limestone.

It can be seen that for any adequate study of this fauna and its origin, further examinations and collections from the wells on the eastern coastal plain and at Vlaming Head, besides geological examination of wells on both the eastern and western coastal plains, are necessary.

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NOTES ON URODACUS SCORPIONS

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I. A NEW SCORPION FROM THE CANNING STOCK ROUTE

When accompanying the party reconditioning the wells along the Canning Stock Route, between April 1930 and October 1931, the late O. H. Lipfert (taxidermist at the Western Australian Museum) collected five specimens of a scorpion which proves to be new to science. Unfortunately a precise locality is not available for any of the material, which bears only the generalised label: "Canning Stock

Route." Lipfert collected along the entire route, from Wiluna in the south to Billiluna, a total distance of some 860 miles. The whole of this Route must be regarded as the type locality.

Urodacus varians sp. nov.

Described from the male holotype (No. W.A.M. 62.1):

Form: slender, tail very long and about eight times as long as the carapace. Hand also long and slender.

Colour in alcohol: Clay colour (Ridgway). Carapace and hand brighter, legs and underparts paler, tail with fifth segment darker, vesicle like the legs.

Carapace: frontal lobes straight, separated by a shallow incision, ocular tubercle shorter behind the eyes, sulcus passing uninterrupted into the triangular depression whose sides are somewhat swollen; front to the level of the eyes more or less closely granular, the rest fairly granular. Carapace longer than the first caudal segment, nearly as long as the fifth. Tail nearly eight times as long as the carapace.

Tergites: minutely granular with smooth vertebral keels.

Sternites: smooth, the last with two smooth keels.

Tail: first four segments smooth, with smooth keels without any terminal tooth, fifth segment with five keels, the ventro-laterals strongly granular, the ventral slightly granular towards the tip, without bifurcation and intercarinal spaces smooth.

Brachium: all the keels slightly granular, thirteen pores at the ventro-lateral angle.

Hand: long and slender, movable finger longer than the palm, upper surface with a few rugosities and faintly granular keels, the finger-keel well developed, fingers with a single row of teeth in addition to the distantly spaced external series, with 16 pores and a group of three.

Legs: smooth, claws equal, first and second legs with six spines on the protarsus, sometimes five and a hair.

Pectines: with 25 teeth.

Dimensions (in millimetres): carapace, 7; trunk, 27.4; tail, 54; first segment, 9; fifth segment, 13.4.

The holotype male, W.A.M. 62.1, is in the collection of the Western Australian Museum, as are also three additional males and one female (paratypes, W.A.M. 62.2).

The female has the tail three times as long as the carapace. There are 16 pectines.

Remarks: The species is one of the long-tailed forms but surpasses all in the extreme length of the appendage, it being up to eight times the length of the carapace in males, with a range from nearly six times to nearly eight times in the specimens before me. However, this is only one of the characters which separates this distinctive species from other forms.

Urodacus varians differs from all previously described species

in having the dorsal keels of the first four segments of the tail free from granules or tubercles although the first has them slightly corrugated. All distal terminations are rounded showing no trace of terminal spines or granules. Also, the hands have smooth keels and the rows of teeth on both fingers are in a single row as in *U. simplex* Pocock from Cape York. This has the dorsal keels "granular or subdentiate," "and a little elevated posteriorly," the first four segments with a few granules laterally, the fifth with "granular intercarinal spaces and the inferior median keel double" (Pocock, 1902).

Urodacus macrurus Pocock, 1899, from North Queensland has a superficial resemblance to this species, but its inter-ocular area is smooth and polished not granular, its carapace is larger, 10 mm., and the teeth of the fingers are in a double series for the greater part of their length though single at the tip. The superior keels of the first four caudal segments are faintly erenulated terminating in a weak tooth.

II. *URODACUS MANICATUS* (THORELL)

The question of the nomenclature of the common species of *Urodacus* of south-eastern Australia has again been raised by Southcott (1955) who rejects Thorell's (1876) name because the description of the type is inadequate. He evidently overlooked the extremely detailed description in Latin given the following year and comprising over 2½ pages (Thorell, 1877).

In 1908 Prof. Kraepelin went fully into the matter after he had studied three specimens in the Berlin Zoological Museum including Peters' type of *U. novaehollandiae*. From this it emerged that the scorpion described and figured by Keyserling (1885) was not *novachollandiae* but *manicatus*, an opinion confirmed by the figures given which show a somewhat tapering carapace and rounded frontal lobes among other features.

Urodacus abruptus Pocock, 1888, must be regarded as a synonym of *U. manicatus* (Thorell).

III. RECTIFICATION OF A PRE-OCCUPIED NAME

A confused situation has become apparent through the unwitting use of the same species name for two distinct species of *Urodacus* in Western Australia. In 1898 Pocock described *Urodacus granifrons*, a species which occurs in the coastal area from Geraldton to about the mouth of the Moore River.

In 1916 Kraepelin, having worked up the scorpions of Dr. E. Mjoberg's Swedish Scientific Expeditions to Australia, of 1910-1913, described as new a species of *Urodacus* from Broome. Unfortunately Kraepelin used *granifrons* as the species name, apparently unaware that it was preoccupied.

I propose

Urodacus kraepelini nom. nov.

as a replacement name for *Urodacus granifrons* Kraepelin, 1916, in

honour of the late Professor K. Kraepelin whose works on the scorpions of Western Australia are well known.

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THE REPTILIAN FAUNA OF THE ISLANDS BETWEEN DONGARA AND LANCELIN, WESTERN AUSTRALIA

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Along the coastline between Dongara and Laneelin are some 35 aeolianite limestone islands. They vary in size from 0.1 acre to 64 acres, lie from about 100 yards to six miles off the shore, are sometimes covered with dune sand, and were cut off from the mainland as a result of a post-Pleistocene rise in sea level (Churehill, 1959; Main, 1961). Their flora is typical of that occurring on small limestone islands along the west coast (*cf.* Storr, 1961). In 1959, 1960 and 1961, a detailed survey of the avian, mammalian and reptilian faunas was undertaken, this contribution giving details of the occurrence and ecology of the reptiles.

Since island size is significant in an ecological discussion, their areas in acres are given below:

Beagle Islands		Essex Rocks	
north-west island	1.2	north island	1.0
south-west island	0.6	middle island	0.7
east island	3.8	south islet	0.3
Lceman-Green Head group		Sandy Knoll	
Snag Island	0.5	north island	1.0
Drummond Rock	0.1	south island	0.5
Webb Islet	0.4	Ronsard Bay	
Llpfert Islet	0.5	north rock	0.1
Orton Rock	0.1	south rock	0.1
Milligan Islet	0.5	Cervantes Islands	
Fisherman Islands		north island	8.0
north island	3.5	middle island	0.5
south island	1.0	south island	2.3
Sandland Island		Green Islets group	
	3.6	north island	4.0
Jurien Bay group		south island	8.5
Favourite Island	7.5	Whittell Islet	0.6
Boullanger Island	64	Buller Island	1.1
Whitloek Island	13.4	Flat Rock	0.2
Tern Islet	0.5	Wedge Island	4.8
Osprey Islet	0.3	Laneelin Island	18.8
Escape Island	26	Edward Island	0.4